

01143.005400



Drawing Changes
Hawkins
PATENT APPLICATION 8/13/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
:)
JEROME CROS and)
PHILIPPE VIAROUGE)
:) Examiner: Karl I. Tamai
Application No. 09/656,085)
:) Group Art Unit: 2834
Filed: September 6, 2000)
:)
For: BRUSH DC MOTORS AND AC)
COMMUTATOR MOTOR)
STRUCTURES WITH)
CONCENTRATED WINDINGS) July 24, 2002

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Commissioner for Patents
Washington, D.C. 20231

REQUEST FOR APPROVAL OF DRAWING CHANGES

Sir:

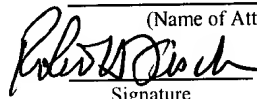
In response to the objection to the drawings made in the Office Action
mailed April 24, 2002 in the above-identified application, the Applicants respectfully
request that the Examiner insert in the drawings the attached new Figures 23 and 24,

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first-class mail in an envelope addressed
to: Commissioner for Patents, Washington, D.C. 20231 on
July 24, 2002

(Date of Deposit)

Robert H. Fischer

(Name of Attorney for Applicant)



Signature

July 24, 2002

Date of Signature

showing the stator teeth and coils, the round profile, oval profile and circular profile, as required by the foregoing Office Action (point 2, page 2).

In addition, the Applicants respectfully request that the Examiner approve the following further proposed changes to Figures 2-22, as shown in red on the attached sketches. These changes comprise the following:

In Figure 2, change “ Fig 2 : Diagram of a machine with 6 rotor slots, 2 stator poles, 6 commutator segments, 2 brushes with a simplex lap winding and a short pitch of 120 electric degrees” to --Figure 2--.

In Figure 3, change “Fig 3 : Diagram of construction of a machine equivalent to the machine of Fig. 2 with a rotor winding made of concentrated windings wound around the teeth” to --Figure 3--.

In Figure 4, change “Fig 4 : Diagram of a machine with 3 rotor slots, 2 stator poles, 6 commutator segments and 2 brushes with a rotor winding made of concentrated windings wound around the teeth” to --Figure 4--.

In Figure 5, change “Fig 5 : Diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth” to --Figure 5--.

In Figure 6, change “Fig 6 : Another diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator to” to --Figure 6--.

In Figure 7, change “Fig 7 : Diagram of a machine with 20 rotor slots, 4 stator poles, 20 commutator segments, 4 brushes with a lap winding and a short pitch from 1 to 5” to --Figure 7--.

In Figure 8, change “Fig 8 : Diagram of construction of a machine equivalent to the machine of Fig. 7 with a rotor winding made of concentrated windings wound around the teeth” to --Figure 8--.

In Figure 9, change “Fig 9 : Diagram of a machine with 5 rotor slots, 4 stator poles, 20 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth” to --Figure 9--.

In Figure 10, change “Fig 10 : Diagram of the parallel coils paths of machines presented in fig 7 and fig 9” to --Figure 10--.

In Figure 11, change “Fig 11 : Diagram of a machine with 5 rotor slots, 4 stator poles, 20 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator” to --Figure 11--.

In Figure 12, change “Fig 12 : Diagram of the machine with 5 rotor slots, 4 stator poles, 40 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth” to --Figure 12--.

In Figure 13, change “Fig 13 : Diagram of the machine with 5 rotor slots, 4 stator poles, 40 commutator segments and 2 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator” to --Figure 13--.

In Figure 14, change “Fig 14 : Diagram of a machine with 10 rotor slots, 8 stator poles, 40 commutator segments and 8 brushes with a rotor winding made of concentrated windings wound around the teeth” to --Figure 14--.

In Figure 15, change “Fig 15 : Diagram of a machine with 12 rotor slots, 4 stator poles, 12 commutator segments, 5 brushes with a lap winding and a diametral pitch” to --Figure 15--.

In Figure 16, change “Fig 16 : Diagram of construction of a machine equivalent to the machine of Fig 15 with a rotor winding made of concentrated windings wound around the teeth” to --Figure 16--.

In Figure 17, change “Fig 17 : Diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and a regular distribution of rotor teeth with two different dimensions” to --Figure 17--.

In Figure 18, change “Fig 18 : Diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth, a regular distribution of rotor teeth with two different dimensions and equalizer connections on the commutator” to --Figure 18--.

In Figure 19, change “Fig 19 : Diagram of a machine with 10 rotor slots, 8 stator poles, 40 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator” to --Figure 19--.

In Figure 20, change “Fig 20 : Axial sectional view of a Permanent Magnet Direct Current motor with a reduced axial length (rotor made of laminated material)” to --Figure 20--.

In Figure 21, change “Fig 21 : Axial sectional view of a Permanent Magnet Direct Current motor with a reduced axial length (rotor made of soft magnetic composite

material) and with a length of the tooth tips identical to the length of the permanent magnets” to --Figure 21--.

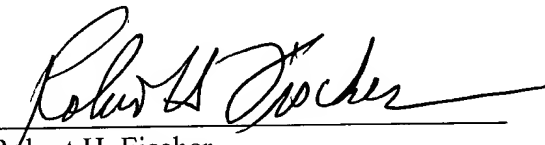
In Figure 22, change “Fig 22 : Axial sectional view of a Permanent Magnet Direct Current motor with a reduced axial length (rotor made of soft magnetic composite isotropic material), and with the endwindings and commutator axially inserted” to --Figure 22--.

Applicant submits that no new matter has been added to the disclosure by the changes, because the changes merely conform to U.S. Patent and Trademark practice.

A copy of this Request for Approval of Drawing Changes is enclosed.

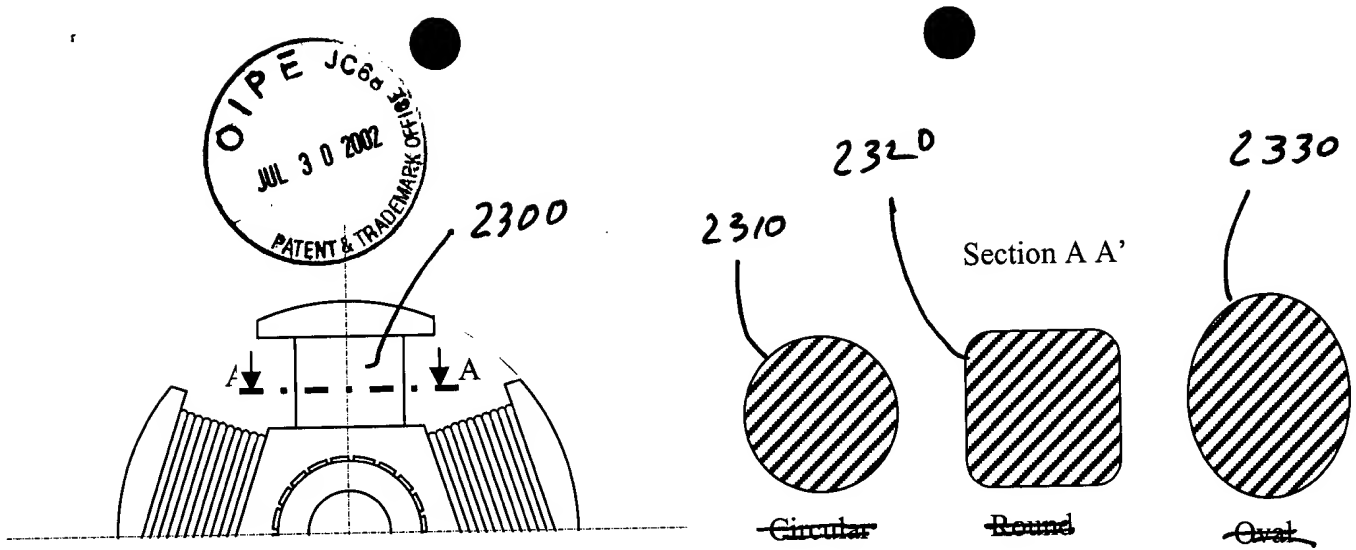
Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

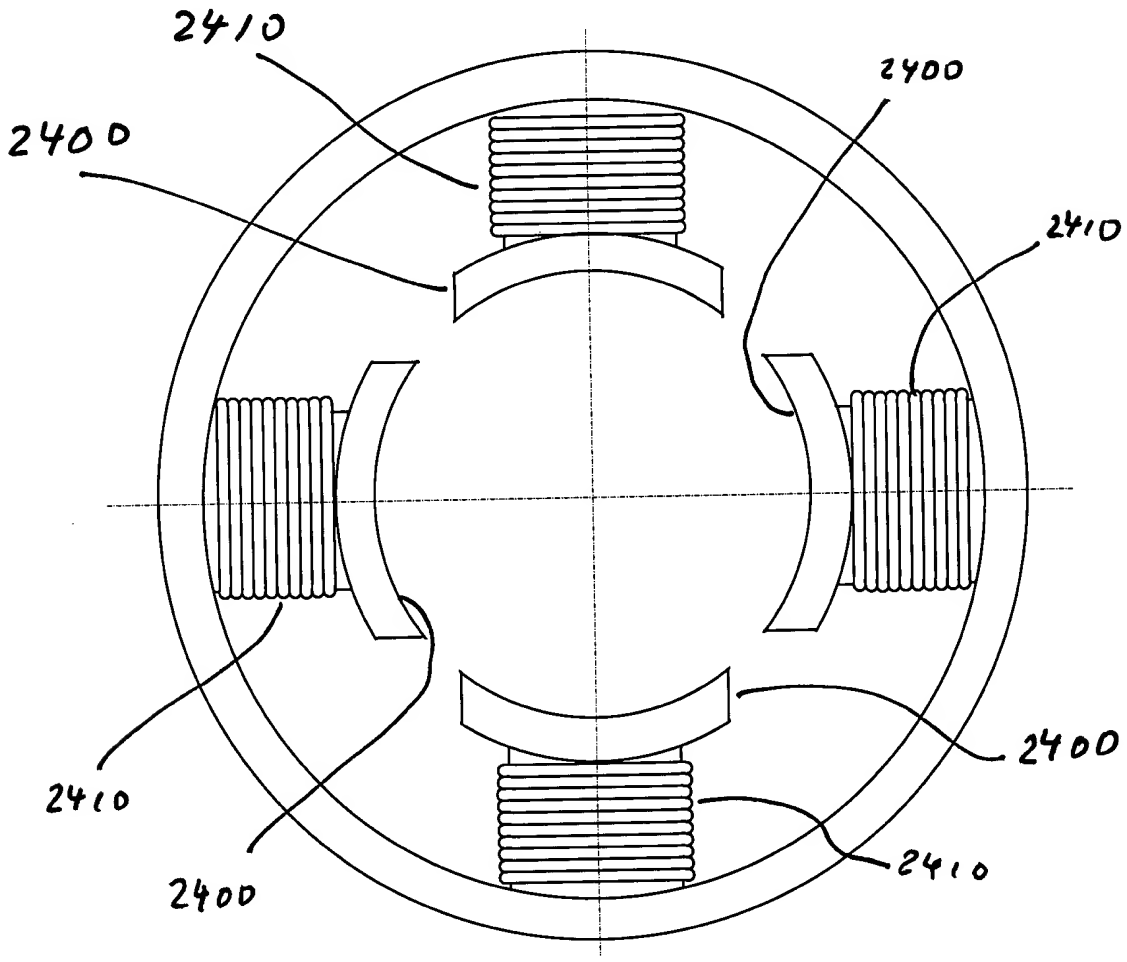

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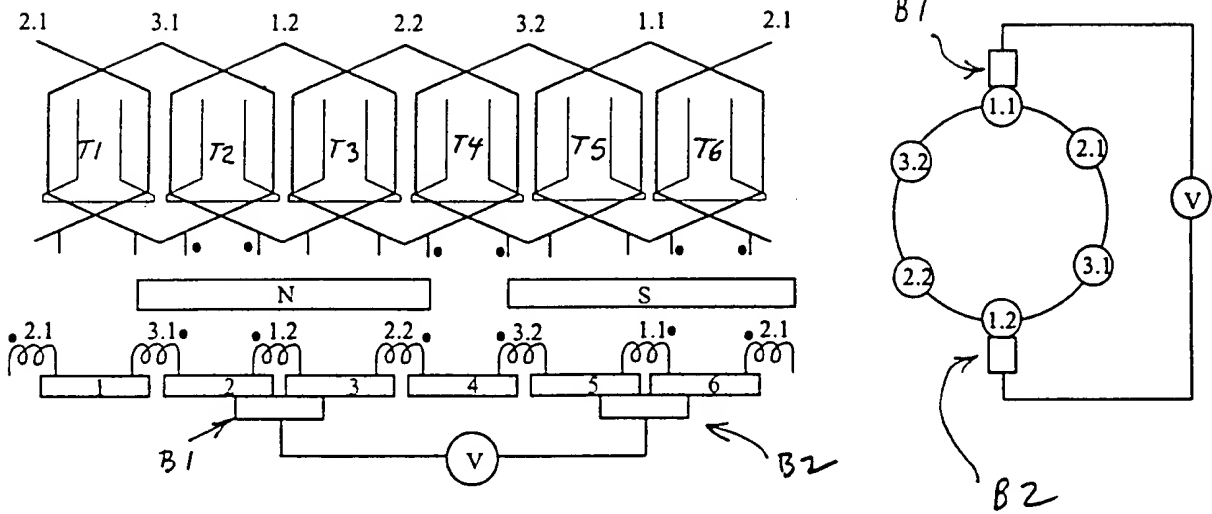
~~Fig 23 Tooth cross section profiles~~
 Figure 23



~~Fig 24. Front view of a 4 poles stator with a concentrated winding.~~

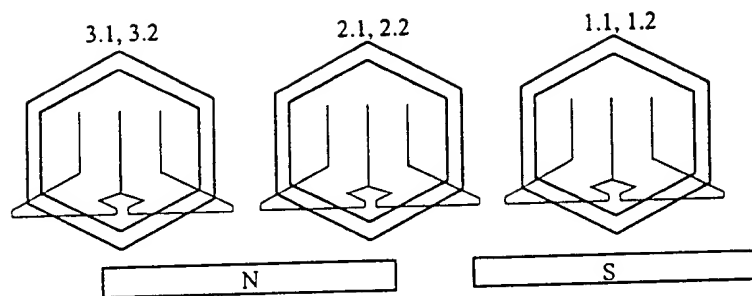
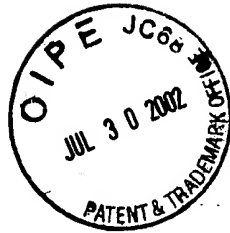
Figure 24

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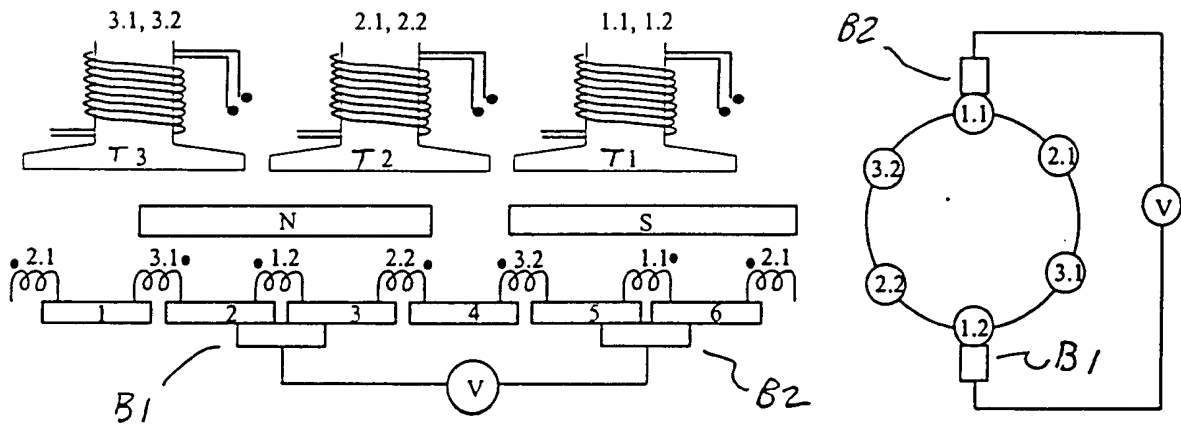
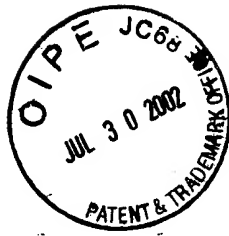
~~Fig 2 : Diagram of a machine with 6 rotor slots, 2 stator poles, 6 commutator segments, 2 brushes with a simplex lap winding and a short pitch of 120 electric degrees~~

FIGURE 2



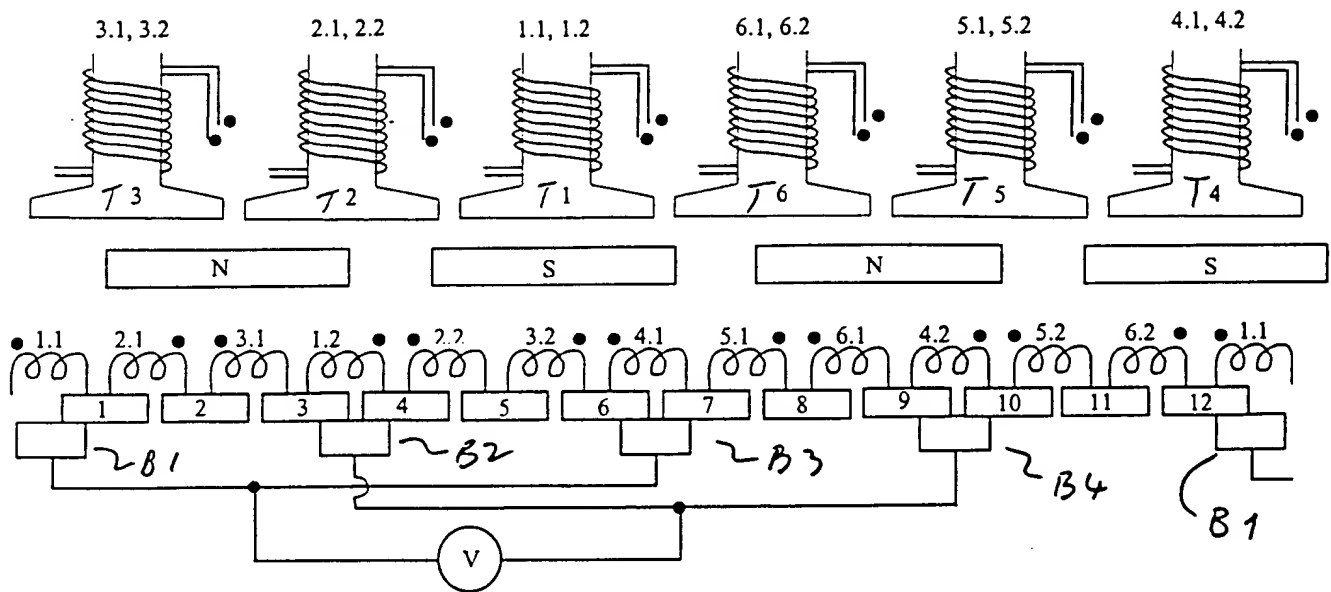
~~Fig 3 : Diagram of construction of a machine equivalent to the machine of Fig 2 with a rotor winding made of concentrated windings wound around the teeth~~

FIGURE 3



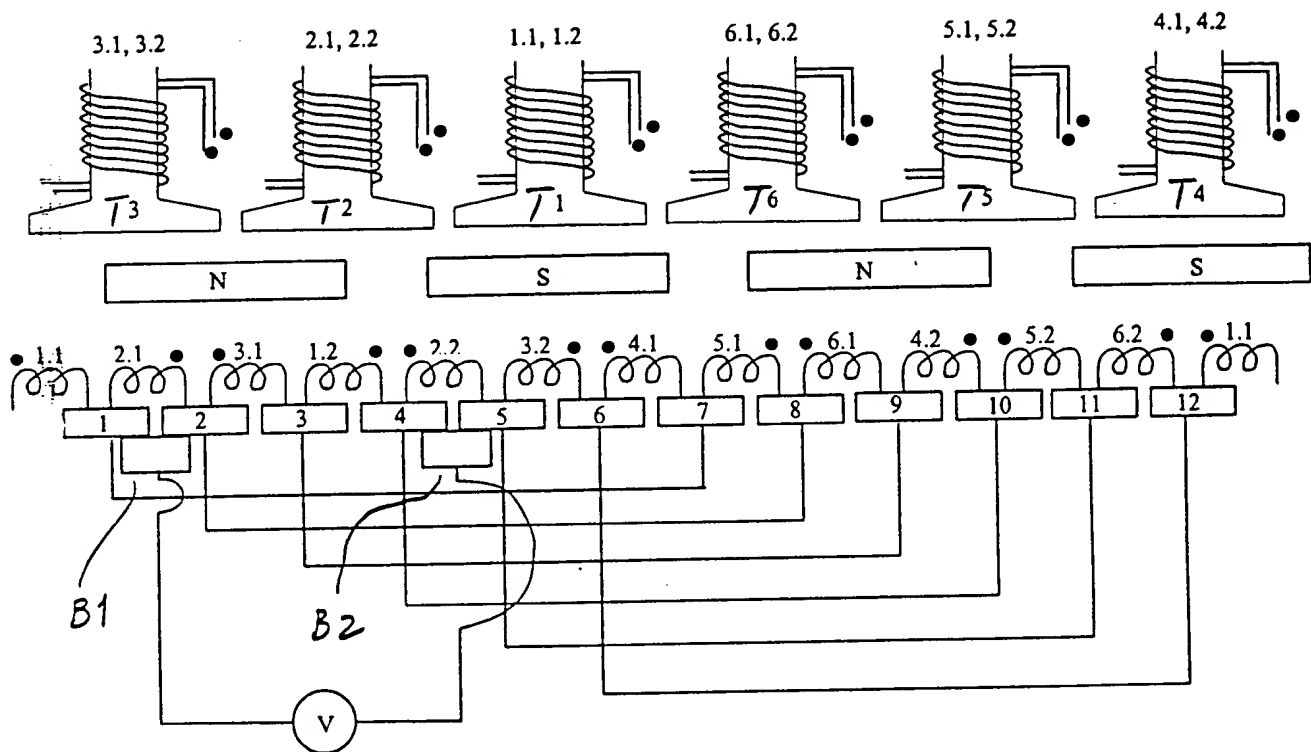
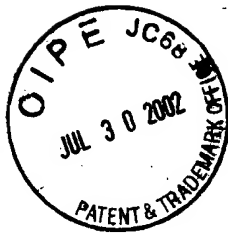
~~Fig 4 . Diagram of a machine with 3 rotor slots, 2 stator poles, 6 commutator segments and 2 brushes with a rotor winding made of concentrated windings wound around the teeth~~

FIGURE 4



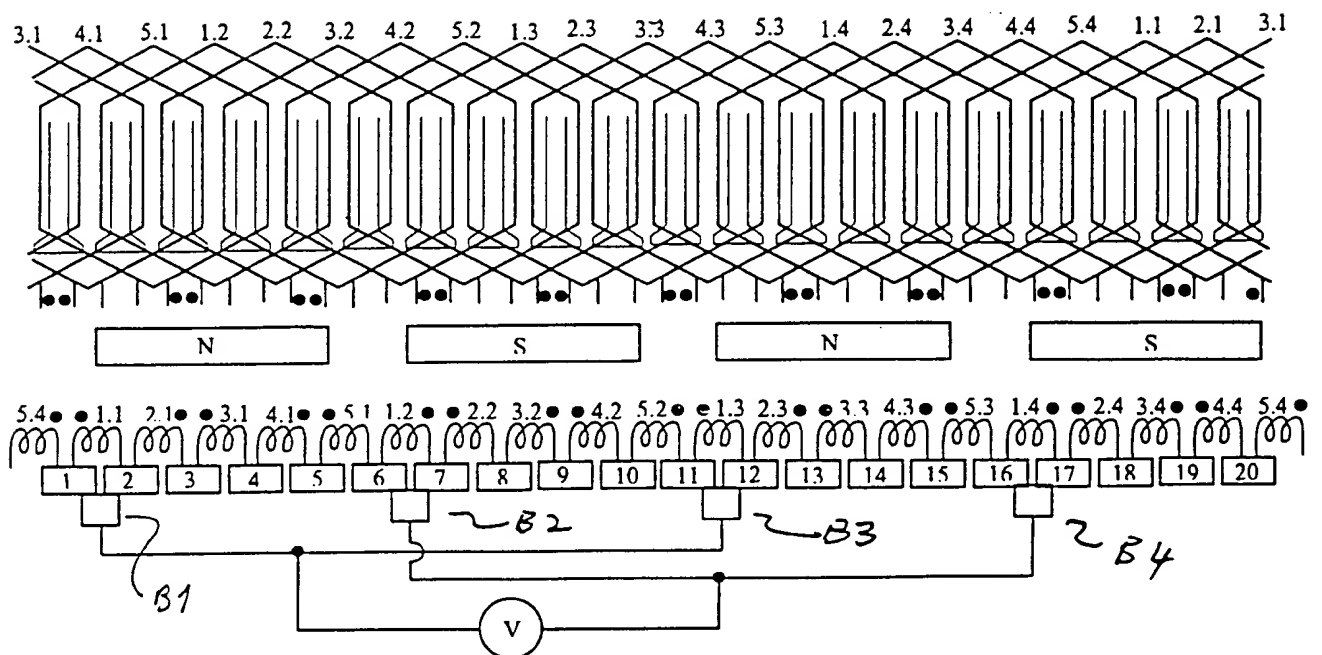
~~Fig 5: Diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth~~

FIGURE 5



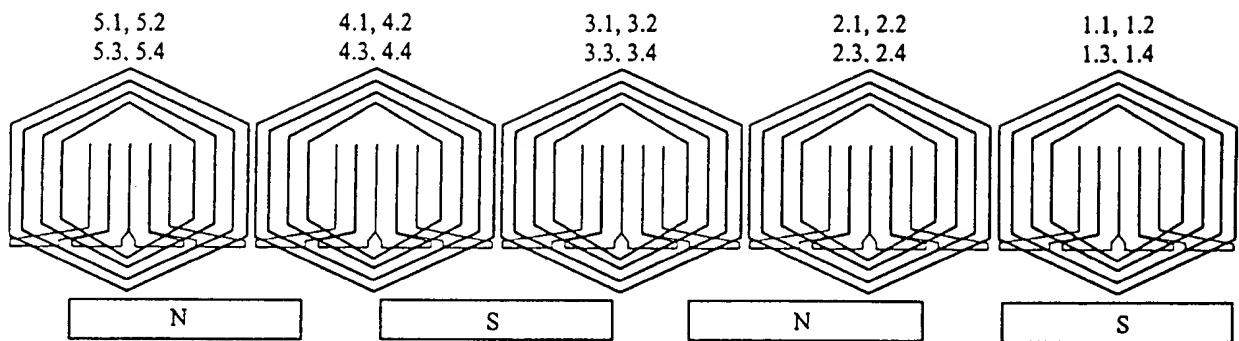
~~Fig 6: Another diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator~~

FIGURE 6



~~Fig 7. Diagram of a machine with 20 rotor slots, 4 stator poles, 20 commutator segments,
4 brushes with a lap winding and a short pitch from 1 to 5~~

FIGURE 7



~~Fig 8 : Diagram of construction of a machine equivalent to the machine of Fig 7 with a rotor winding made of concentrated windings wound around the teeth~~

FIGURE 8

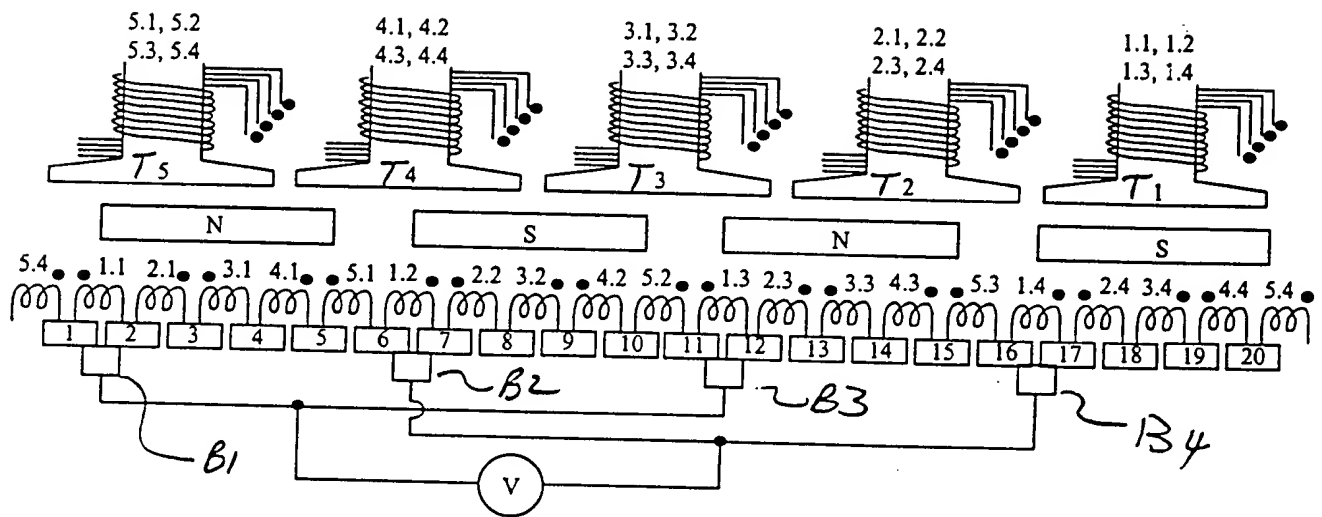
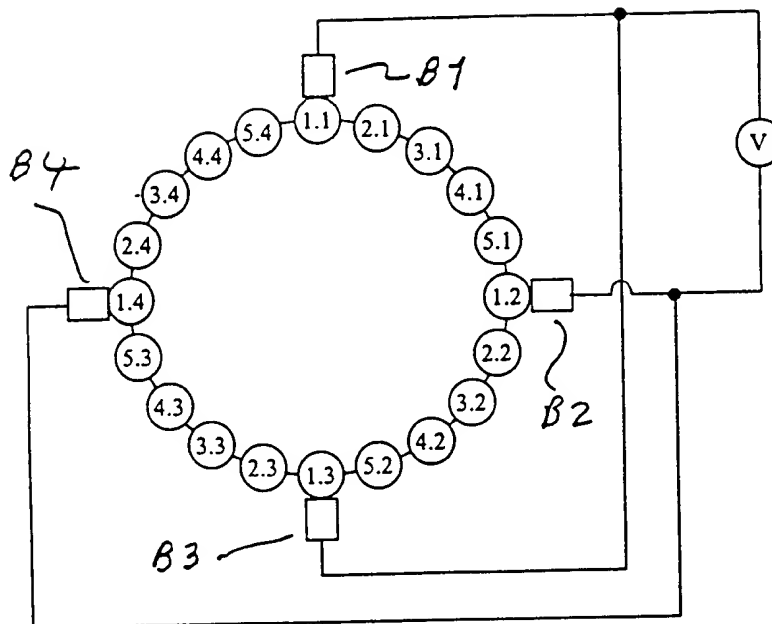
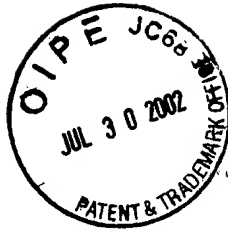


Fig 9 : Diagram of a machine with 5 rotor slots, 4 stator poles, 20 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth

FIGURE 9



~~Fig 10. Diagram of the parallel coils paths of machines presented in fig 7 and fig 9~~

FIGURE 10

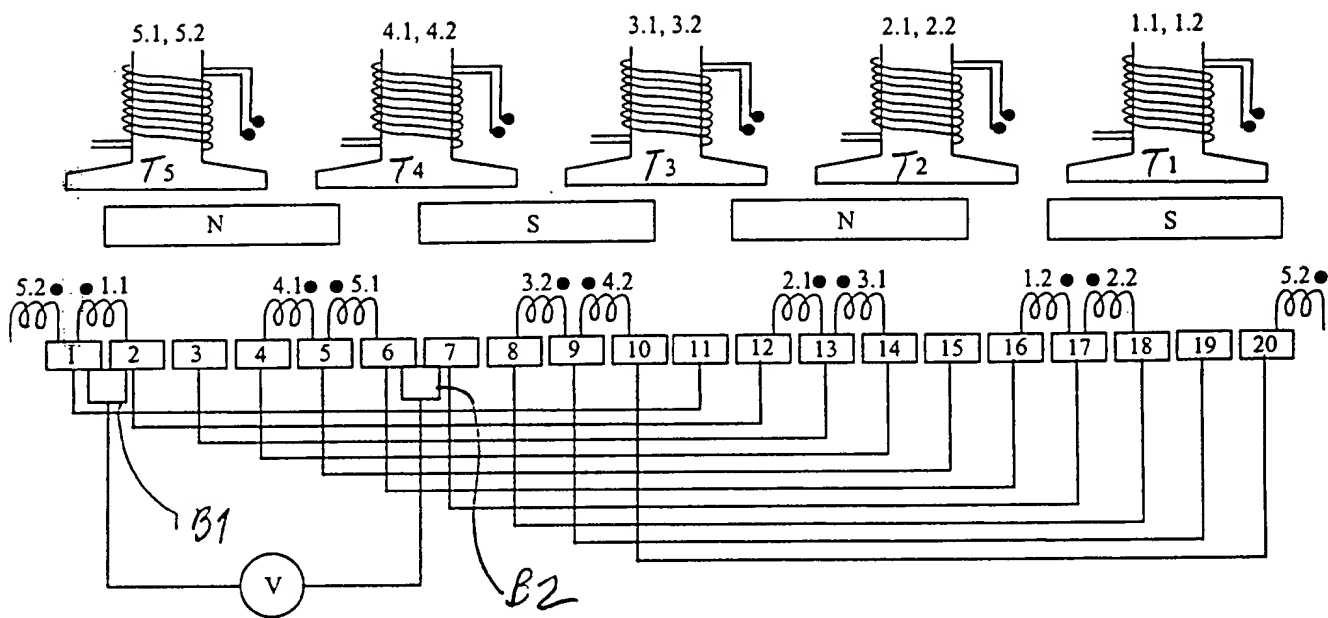
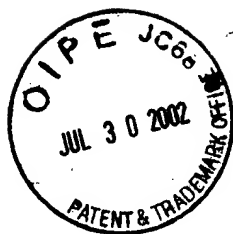


Fig 11 : Diagram of a machine with 5 rotor slots, 4 stator poles, 20 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator

FIGURE 11

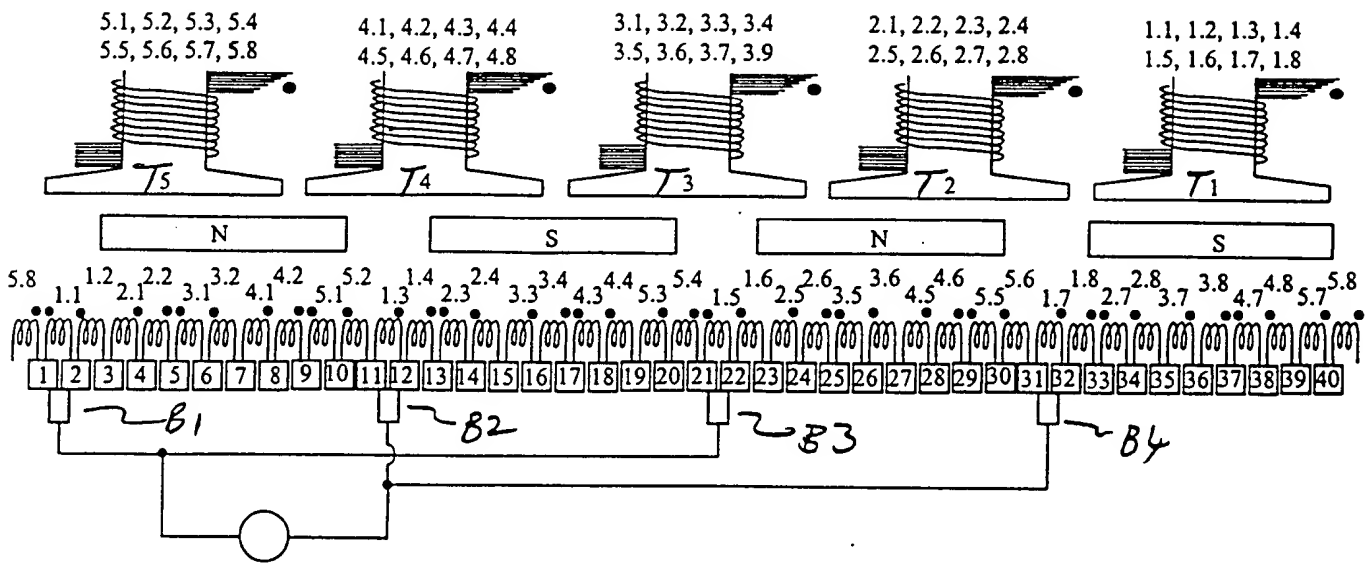


Fig 12 : Diagram of the machine with 5 rotor slots, 4 stator poles, 40 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth

FIGURE 12

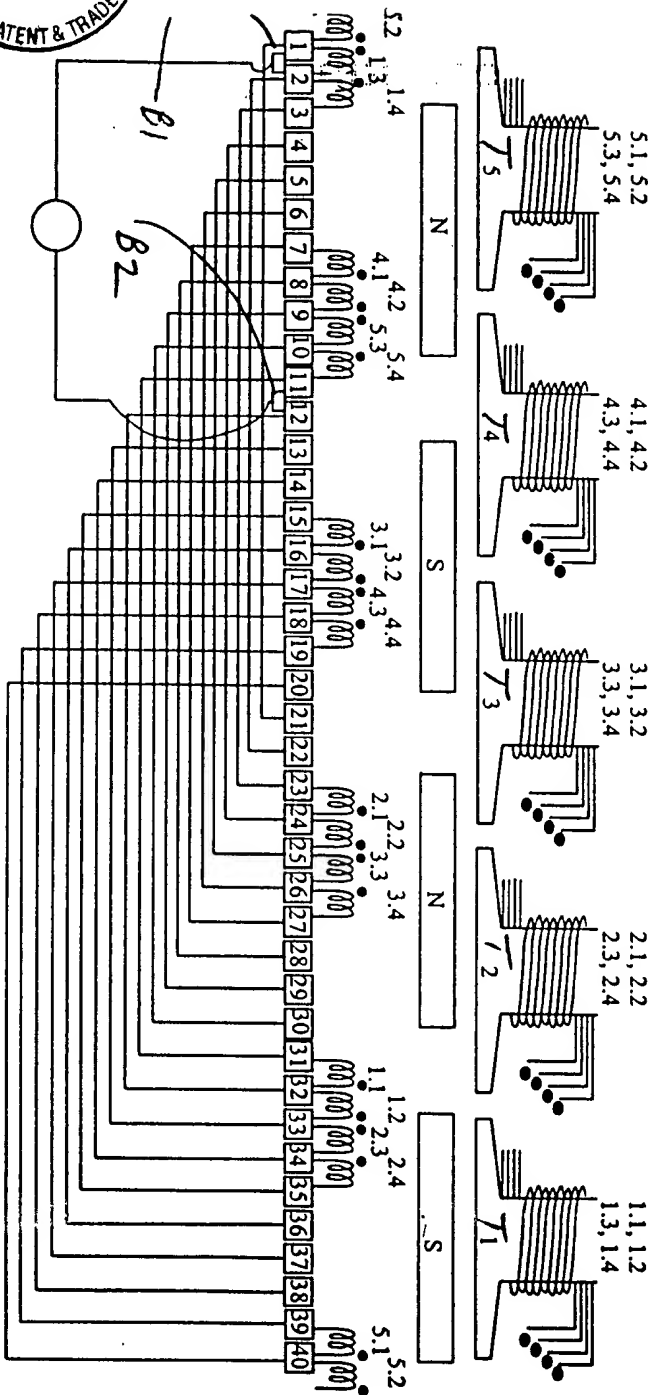


Fig. 13 - Diagram of the machine with 5 rotor slots, 4 stator poles, 40 commutator segments and 2 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator.

FIGURE 13

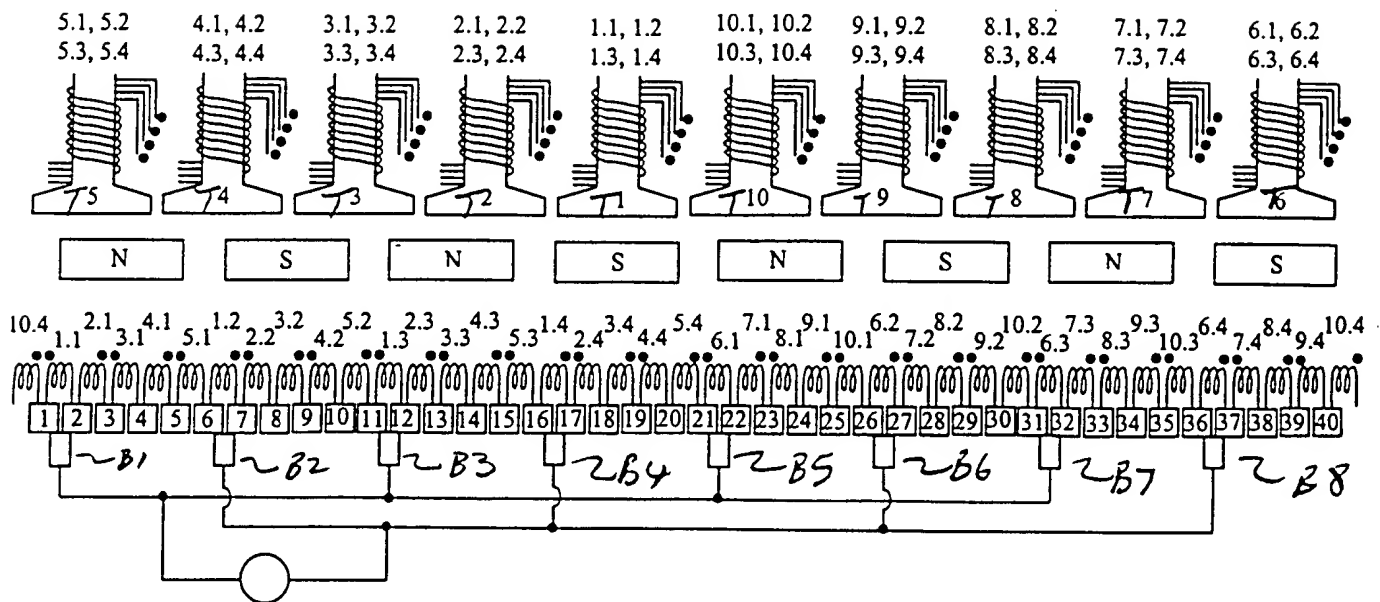
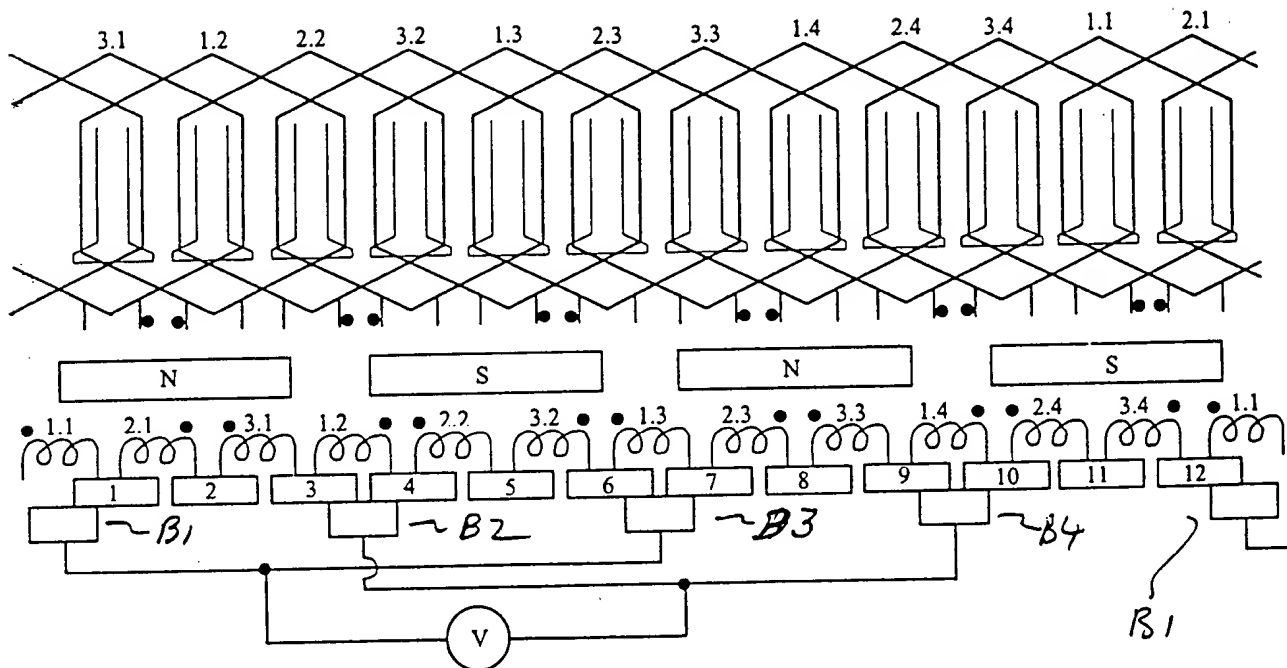


Fig 14: Diagram of a machine with 10 rotor slots, 8 stator poles, 40 commutator segments and 8 brushes, with a rotor winding made of concentrated windings wound around the teeth.

FIGURE 14



~~Fig 15 : Diagram of a machine with 12 rotor slots, 4 stator poles, 12 commutator segments, 4 brushes with a lap winding and a diametral pitch~~

FIGURE 15

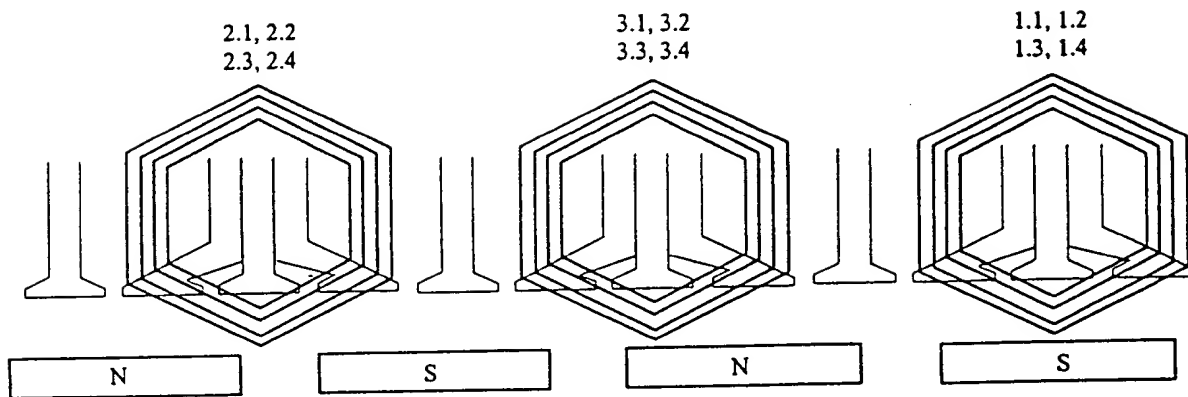
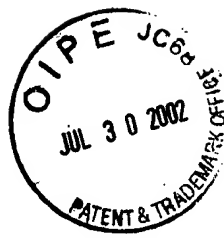
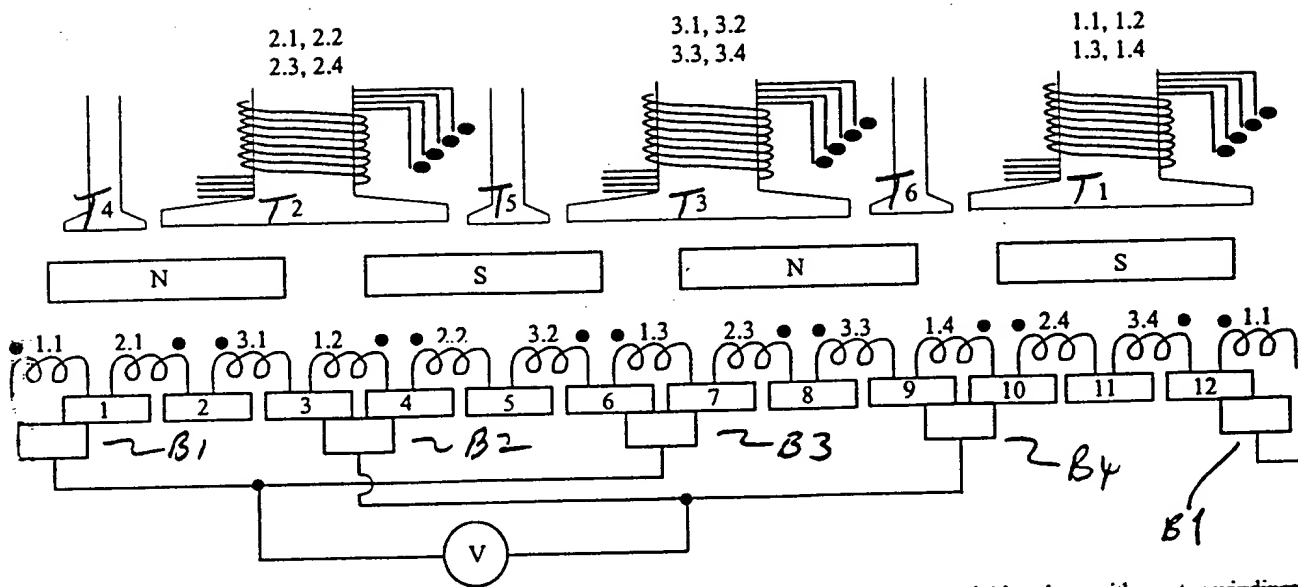
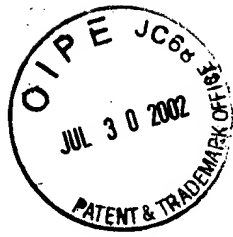


Fig 16: Diagram of construction of a machine equivalent to the machine of Fig 15 with a rotor winding made of concentrated windings wound around the teeth

FIGURE 16



~~Fig. 17. Diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and a regular distribution of rotor teeth with two different dimensions~~

FIGURE 17

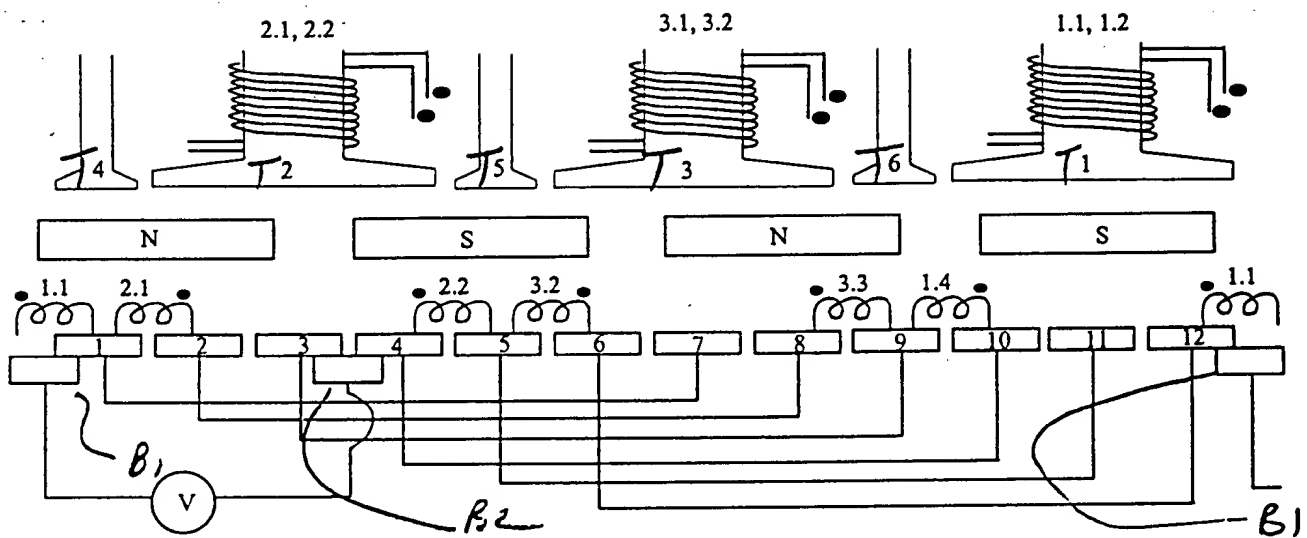
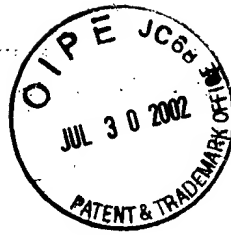


Fig 18 : Diagram of a machine with 6 rotor slots, 4 stator poles, 12 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth, a regular distribution of rotor teeth with two different dimensions and equalizer connections on the commutator

FIGURE 18

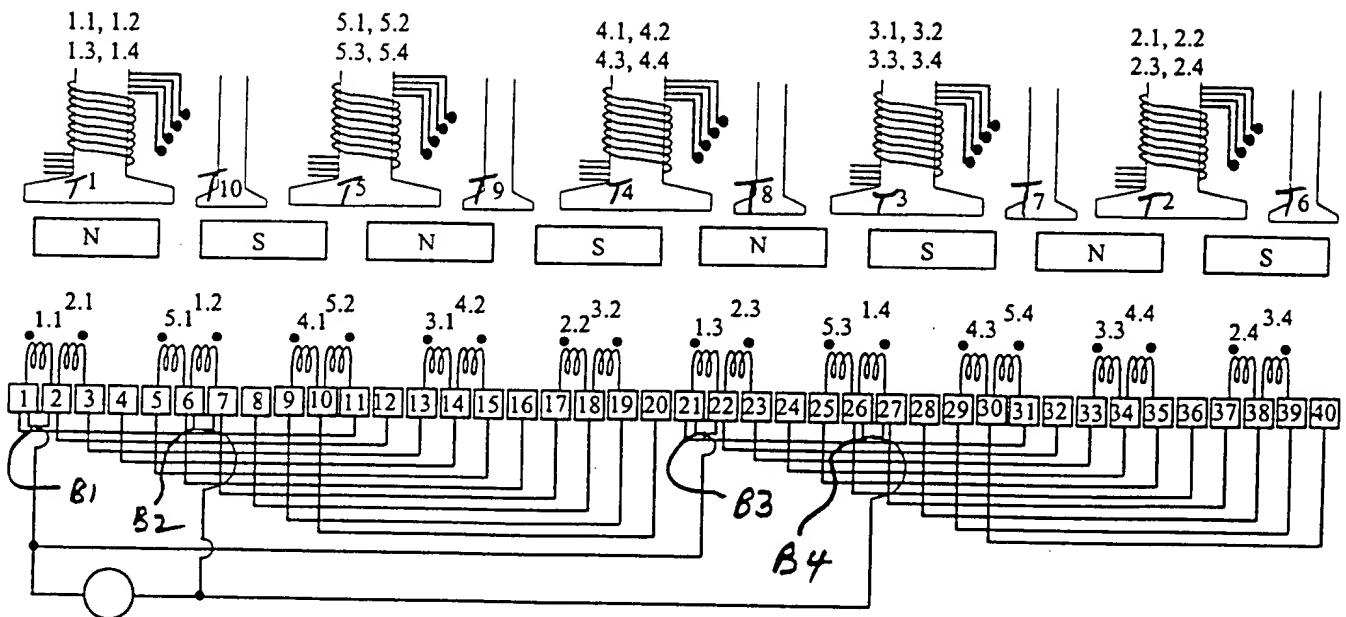
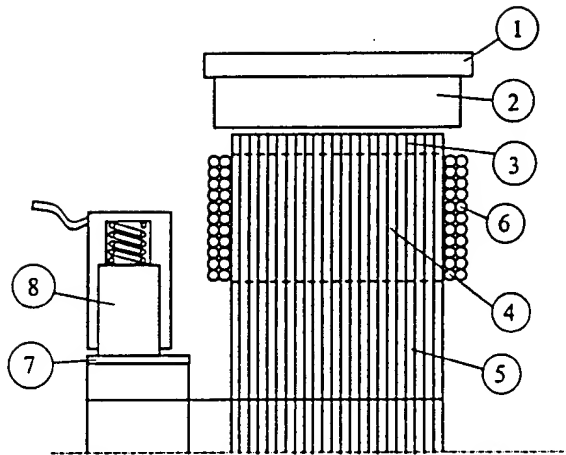


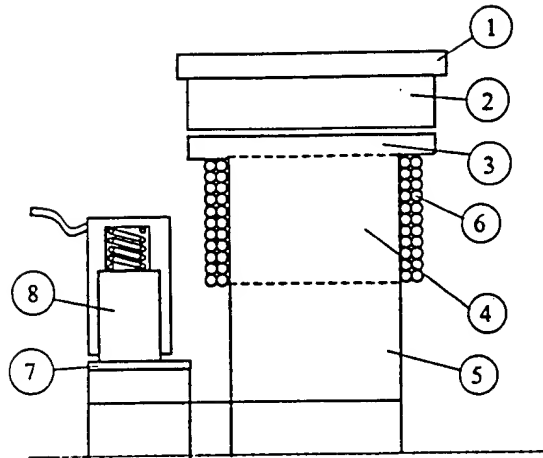
Fig 19. Diagram of a machine with 10 rotor slots, 8 stator poles, 40 commutator segments and 4 brushes with a rotor winding made of concentrated windings wound around the teeth and equalizer connections on the commutator

FIGURE 19



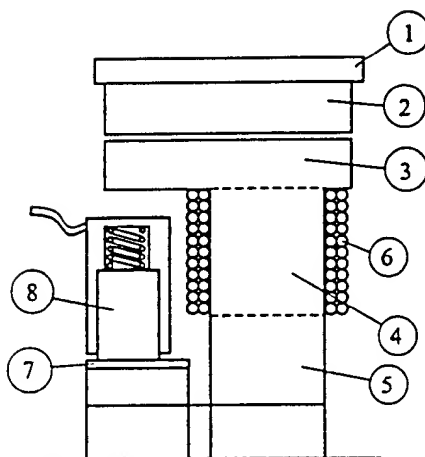
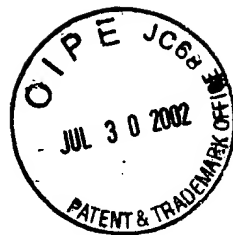
~~Fig. 20 : Axial sectional view of a Permanent Magnet Direct Current motor
with a reduced axial length (rotor made of laminated material)~~

FIGURE 20



~~Fig 21 : Axial sectional view of a Permanent Magnet Direct Current motor with a reduced axial length (rotor made of soft magnetic composite material) and with a length of the tooth tips identical to the length of the permanent magnets~~

FIGURE 21



~~Fig 22 : Axial sectional view of a Permanent Magnet Direct Current motor with a reduced axial length (rotor made of soft magnetic composite isotropic material), and with the end windings and commutator axially inserted~~

FIGURE 22